REMARKS

By this Amendment, the specification has been amended and claims 1 and 17 have amended. No new matter has been introduced by the amendments to the specification or claims. Reconsideration and allowance of the present application based on the foregoing amendments and the following remarks is respectfully requested. Upon entry of this Amendment, claims 1-33 will be pending in this application.

Entry of this Amendment is proper under 37 CFR §1.116 since the Amendment: (a) places the application in condition for allowance (for the reasons discussed herein); (b) does not raise any new issue requiring further search and/or consideration (since the amendments add more clarity to the claims and amplify issues contained in the original claims); (c) satisfies a requirement of form asserted in the previous Office Action; and (d) places the application in better form for appeal, should an appeal be necessary. The Amendment is necessary and was not earlier presented because it was made in response, at least in part, to arguments raised in the Final Rejection. Entry of the Amendment is thus respectfully requested.

Claims 1-11, 17-27 and 29-32 were rejected under 35 U.S.C. §102(e) over Scott (U.S. 6,094,421). Claims 12 and 28 were rejected under 35 U.S.C. §103 over Scott in view of Bjork et al. (U.S., 6,084,862). Claims 16 and 33 were rejected under 35 U.S.C. §103 over Scott. Applicant traverses all of these rejections because Scott, analyzed individually or in combination with the other cited prior art references, e.g., Bjork et al., fails to teach or suggest all the features recited in the rejected claims. For example, the cited prior art fails to teach or suggest a transmission method comprising, commanding a first subscriber terminal and a second subscriber terminal to send the at least one base station respective first and second signals using a determined time slot and a determined carrier frequency and commanding at least the second subscriber terminal to adjust a transmission moment of the second signal within a determined time slot so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot, as recited in independent claim 1 and its dependent claims 2-16. Similarly, the cited prior art fails to teach or suggest a radio system comprising means for commanding a first subscriber terminal and a second subscriber terminal to send the at least one base station respective first and second signals using a determined time slot and a determined carrier frequency and means for commanding at least the second subscriber terminal to adjust a transmission moment of the second signal within a determined time slot so that the at least one base station receives the

transmitted first and second signals at different moments within the same time slot, as recited in independent claim 17 and its dependent claims 18-33.

Scott merely teaches that a mobility of user stations in cellular systems leads to unpredictability of propagation delay times. Thus, time division duplex systems have guard times between transmission and reception. Therefore, the aim of the method taught by Scott is to find the shortest possible guard times (column 7, lines 53-65, Abstract).

Accordingly, Scott merely discloses a method and a system wherein guard time overhead is reduced. Specifically, Scott teaches, at column 4, lines 51-65, that each transmission has a header indicating whether the time slot pair is unoccupied. If a slot pair is free, the user station responds with a brief message in its designated portion of the slot pair. The base station then compares the actual time of receiving the user transmission with the expected time of reception, and determines how far away the user station is. In subsequent time frames, the base station commands the user station to advance or retard its timing if necessary to avoid interference. Therefore, in Scott, the base station determines propagation delays for each received signal, gives a timing adjustment command and selects time slots and frequency bands for receiving and transmitting (see for example, Figure 8A, column 16, line 48 - column 18, line 39, the Abstract and claim 1).

Thus, generally speaking, Scott teaches a method and system to perform a combined TDD/TDM/TDMA message structure that adjusts reverse link transmission timing so that user-to-base messages transmitted from user stations arrive at the base station sequentially and do not overlap (column 12, lines 35-39). The user stations transmit one by one, in allocated receive time slots on the same frequency as used by the base station, with only minimal guard times between each reception. To prevent interference among the user transmissions, the base station commands the user stations to advance or retard their transmission timing as necessary (column 12, lines 49-55). In other words, Scott merely teaches a method, where user equipment transmissions are meant to be in different time slots and the transmissions are delayed or advanced if the guard times between these time slots are not long enough in the base station and the signals cause interference to each other. Thus, the minimum guard time varies according to the variations of the radio channel.

To the contrary, the claimed invention relates to a method to adjust the transmission moments of the signals transmitted by user equipment so that the base station receives the signals transmitted from the different user equipment at different moments (claim 1) in the same time slot and at the same frequency (described at page 6, lines 1-8 and page 7, line 30 – page 8, line 6). That is to say, the adjustment is done within the same time slot and at the

same frequency. This adjustment of the signals allows the training sequences to be received at different moments at the base station, enabling the separation and recognition of the signals transmitted at the same frequency and in the same time slot (page 7, line 34 - page 8, line 6).

Bjork et al. fails to remedy the deficiencies of Scott because Bjork et al. merely teaches signal correlating techniques. Thus, the combined teachings of Scott and Bjork et al. fail to teach or suggest the invention as recited in claims 1 and 17 and their respective dependent claims.

Accordingly, claims 1-33 are submitted to be allowable over the cited references for at least the reasons set forth above. Reconsideration and allowance of claims 1-33 is respectfully requested.

Attached hereto as an Appendix captioned "Version with markings to show changes made" is a marked-up version of the changes made to the claims by the current amendment.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 1, delete the whole paragraph starting in line 16 and replace it with the following new paragraph

When an [indoors] indoor radio system is designed, particular attention must be paid to matters affecting the propagation of the signal. The walls and other structures in the building may attenuate the signal very rapidly. The rapid attenuation of the signal may require a very dense base station network, whereby the RF heads are also relatively close together. Because of the large number of base stations, the system [is] can be relatively expensive to build.

Page 2, delete the whole paragraph starting in line 16 and replace it with the following new paragraph

In so-called office base stations intended for [indoors] indoor use, relatively low signal transmission power is used, since the RF heads are located in the vicinity of people. A sufficiently reliable estimate, however, is not achieved with [the] previously known methods because of the low transmission power used in such base stations, which [and this] impairs the performance of the receiver.

Page 2, delete the whole paragraph starting in line 22 and replace it with the following new paragraph

[The object] One aspect of the invention is to provide a transmission method and a radio system in which the above problems are solved. The transmission method used in a radio system includes at least one base station comprising a plurality of RF heads and a plurality of subscriber terminals, at least two of which transmit access bursts to one and the same base station. The access bursting can activate, between a subscriber terminal and a base station, a connection that is established by a signal that is of a certain frequency and is sent in time slots. For example, the transmission method comprises commanding first and second subscriber terminals to send the at least one base station respective first and second signals using a determined time slot and a determined carrier frequency simultaneously, and

commanding at least the second subscriber terminal to adjust a transmission moment of the second signal within the determined time slot so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot. In another embodiment, the method further comprises commanding one subscriber terminal to change from one RF head of the at least one base station to another RF head of the at least one base station while the subscriber terminal is roaming in the radio system [The object is achieved with a method described in the introduction, the method being characterized in that when the subscriber terminal is commanded to send the base station a signal that employs a time slot and frequency already used by another subscriber terminal, the subscriber terminal is sent a command to adjust the transmission moment of the signal so that the base station receives the transmitted signals at different moments].

Page 3, delete the whole paragraph starting in line 1 and replace it with the following new paragraph

The radio system [is characterized by comprising transmission means, which command the subscriber terminal to send the base station a signal that employs a time slot and a frequency already used by another subscriber terminal, and adjustment means, which on the basis of the command sent by the transmission means adjust the transmission moment of the signal to be transmitted to the base station so that the base station receives the transmitted signals at different moments] comprises means for commanding first and second subscriber terminals to send the at least one base station having a plurality of RF heads respective first and second signals using a determined time slot and a determined carrier frequency simultaneously, and means for commanding at least the second subscriber terminal to adjust a transmission moment of the second signal within the determined time slot so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot. In another embodiment, the radio system further comprises means for commanding one subscriber terminal to change from one RF head of the at least one base station to another RF head of the at least one base station while the subscriber terminal is roaming in the radio system.

Page 3, delete the whole paragraph starting in line 8

Page 7, delete the whole paragraph starting in line 4 and replace it with the following new paragraph

In the radio system illustrated [by] in Fig. 3, the RF heads 166, 167 receive an interference signal substantially simultaneously with an information signal. Since both subscriber terminals 201, 202 use the same training sequence, it is difficult for the base station 100 to separate the information signals [form] from the interference signals. In practice, this means that the receiver of the base station 100 is not able to separate the interference signal from the impulse response of the information signal estimated by it, whereby the quality of the signal is impaired.

Page 7, delete the whole paragraph starting in line 12 and replace it with the following new paragraph

Let us assume that the transmission means 101 command the subscriber terminal to send the base station 100 a signal having a time slot and frequency that are already used by another subscriber terminal and that are stored in the storage means 103. The adjustment means 205 can then adjust the transmission moment of the signal to be transmitted to the base station 100. The adjust means 205 [adjust] adjusts the transmission moment, preferably, before an actual connection is established.

Page 8, delete the whole paragraph starting in line 7 and replace it with the following new paragraph

In the radio system illustrated [by the figure] in Fig. 3, the signals transmitted onto the radio path arrive at the receiver fairly rapidly, since the distance of the subscriber terminal from the RF head of the base station 100 is short. This means that the delay of the signal on the radio path is short. The short delay allows the estimated impulse response to be limited, for example, to a length of 3 or 4 bits. In practice, the correlation means 102 [limit] limits the impulse responses to substantially 3 bits. If the adjustment means 205 [adjust] adjusts the timing of the subscriber terminal 201, 202, then the base station 100 can receive the signal, for example, at a delay of 4 bits, whereby the different impulse responses do not yet interleave. The adjustment means 205 thus [adjust] adjusts the transmission moments of the signals so that the base station 100 receives the signals transmitted by the subscriber terminal at different moments.

IN THE CLAIMS:

1. (Twice Amended) A transmission method used in a radio system that includes at least one base station comprising a plurality of RF heads and a plurality of subscriber

terminals, at least two of which transmit access bursts to one and the same base station, the access bursting activating between a subscriber terminal and a base station a connection that is established by a signal that is of a certain frequency and is sent in time slots, the method comprising:

commanding a first subscriber terminal to send the at least one base station a first signal using a determined time slot and a determined carrier frequency;

commanding a second subscriber terminal to send the at least one base station a second signal using the determined time slot and the determined carrier frequency simultaneously employed by the first subscriber terminal; and

commanding at least the second subscriber terminal [when the subscriber terminal is commanded to send the base station a signal that employs a time slot and frequency already used by another subscriber terminal, sending the subscriber terminal a command] to adjust [the] a transmission moment of the second signal within the determined time slot so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot.

17. (Twice Amended) A radio system including at least one base station comprising a plurality of RF heads and a plurality of subscriber terminals, at least two of which transmit access bursts to one and the same base station, the access burst activating between a subscriber terminal and a base station a connection that is established by a signal of a certain frequency sent in time slots, the radio system comprising:

means for commanding a first subscriber terminal to send the at least one base station a first signal using a determined time slot and a determined carrier frequency;

means for commanding a second subscriber terminal to send the at least one base station a second signal using the determined time slot and the determined carrier frequency simultaneously employed by the first subscriber terminal; and

means for commanding at least the second subscriber terminal [transmission means, which command the subscriber terminal to send the base station a signal that employs a time slot and frequency already used by another subscriber terminal, and

adjustment means, which based on the command sent by the transmission means] to adjust [the] a transmission moment of the second signal to be transmitted to the at least one base station within the determined time slot so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot.

END OF APPENDIX